

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-51 (canceled).

Claim 52 (Currently Amended): A multi-component system for making impressions according to claim ~~51~~ 76 comprising at least two components A and B, characterized in that component A contains

- (a) the at least one compound having at least two alkenyl groups; and
- (b) the at least one organohydrogenpolysiloxane; and
- (d₁) the at least one polymeric compound having at least one alkynyl group or
- (d₂) the at least one compound having ~~at least one~~ an Si-OR structural unit, wherein R = H, alkyl, alkoxyalkyl or acyl;

and component B contains

- (c) the at least one hydrosilylation catalyst; and

when a compound (d₂) having ~~at least one~~ an Si-OR structural unit is contained, component A, component B, or each of components A and B contains

- (e) the at least one condensation catalyst or condensation cross-linking agent.

Claim 53 (Currently Amended): A multi-component system for making impressions according to claim ~~51~~ 76 comprising at least two components A and B, characterized in that component A contains

- (a) the at least one compound having at least two alkenyl groups; and
 - (b) the at least one organohydrogenpolysiloxane; and
- component B contains
- (c) the at least one hydrosilylation catalyst; and
 - (d₂) the at least one compound having ~~at least one~~ an Si-OR structural unit, wherein R = H, alkyl, alkoxyalkyl or acyl;

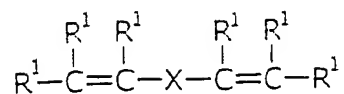
and either component A or B contains

- (e) the at least one condensation catalyst or condensation cross-linking agent.

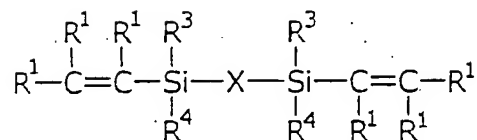
Claims 54-55 (Canceled).

Claim 56 (Currently Amended): A multi-component system for making impressions according to claim ~~51~~ 76,

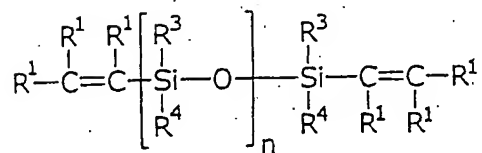
characterized in that the alkenyl compound (a) is



or



or

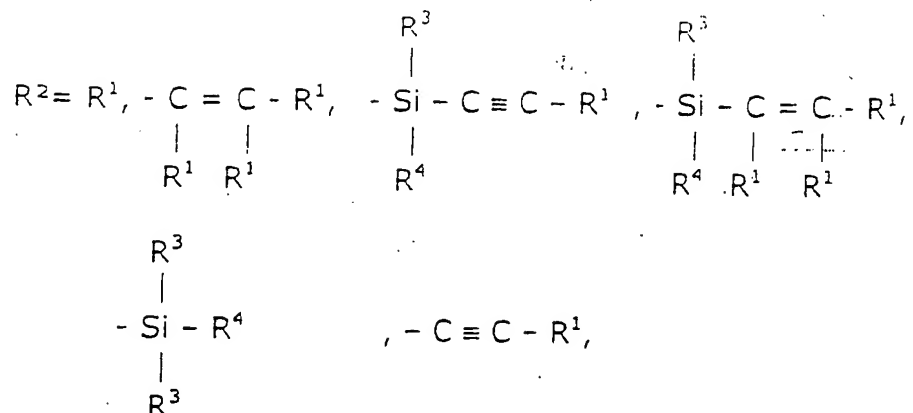


wherein n = 0 to 6000; or

a silane dendrimer having terminal alkenyl groups;

wherein

R¹ = alkyl, aryl, arylalkyl, halogen-substituted alkyl and aryl groups, cyanoalkyl, cycloalkyl, cycloalkenyl, -H, -OH, alkoxy, acyl and combinations thereof;



R^3 = alkenyl, alkynyl, halogen, aryl, alkylaryl, H, halogen-substituted alkyl and aryl groups, alkyl, alkoxy and hydroxy, and combinations thereof;

R^4 = R^3 , or R^4 is different from R^3 , wherein R^4 is, in particular, alkoxy, hydroxy, alkyl, methyl, alkynyl, ethynyl, or combinations thereof; and

X = polysiloxane, oligosilicic acid esters, polysilicic acid esters, polyethers, polymeric hydrocarbons, polyesters and copolymers of the above mentioned compounds.

Claim 57 (Currently Amended): A multi-component system for making impressions according to claim 51 76, characterized in that the organohydrogenpolysiloxanes (b) are polyalkyl-, polyaryl- and polyalkylaryl-, polyhaloalkyl-, polyhaloaryl- or polyhaloalkylarylsiloxanes, which are present in the form of

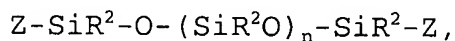
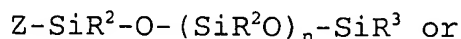
oligomers or polymers in a linear, branched or cyclic form or as a QM resin and have at least one Si-H bond.

Claim 58 (Currently Amended): A multi-component system for making impressions according to claim ~~51~~ 76, characterized in that the condensation catalysts and the condensation cross-linking agents (e) are aluminum alkoxides, antimony alkoxides, barium alkoxides, boron alkoxides, calcium alkoxides, cerium alkoxides, erbium alkoxides, silicon alkoxides, gallium alkoxides, germanium alkoxides, hafnium alkoxides, indium alkoxides, iron alkoxides, lanthanum alkoxides, magnesium alkoxides, neodymium alkoxides, samarium alkoxides, strontium alkoxides, tantalum alkoxides, titanium alkoxides, tin alkoxides, vanadium alkoxide oxides, yttrium alkoxides, zinc alkoxides, zirconium alkoxides, titanium or zirconium compounds, titanium, zirconium and hafnium alkoxides, and double metal alkoxides, chelates and oligo- and polycondensates of the above alkoxides, dialkyltin diacetate, tin(II) octoate, dialkyltin diacylate or dialkyltin oxide.

Claim 59 (Currently Amended): A multi-component system for making impressions according to claim ~~51~~ 76, characterized in that the hydrosilylation catalysts (c) are transition metals of the 8th auxiliary group, or platinum, palladium and rhodium or their salts,

complexes and colloids, or platinum complexes and salts of hexachloroplatinic acid.

Claim 60 (Currently Amended): A multi-component system for making impressions according to claim 54 76, characterized in that said multi-component system further comprises (f) inhibitors of the condensation reactions of condensation catalysts or condensation cross-linking agents with compounds containing Si-OR structural units, wherein R=H, alkyl, alkoxyalkyl or acyl and the inhibitors of the condensation reactions (f) are di-, tri-, oligo- and -polydialkylsiloxanes of general formula



wherein Z is OH or NR^2 , R represents the same or different optionally substituted hydrocarbyl residues, such as alkyl, alkenyl, aryl or alkynyl, and $n = 0$ or an integer of from 1 to 100; or

aliphatic diols, diamines, diphosphanes, polyamines, polyphosphanes or polyols, OH-, NH- or PR-functional polyethers or other chelating compounds.

Claim 61 (Currently Amended): A multi-component system for making impressions according to claim 54 76, characterized in that

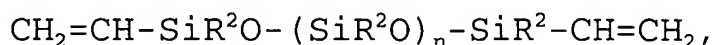
said multi-component system further comprises the water-donating agents (g) are comprising inorganic fillers containing superficially bound residual moisture or water bound in the crystal lattice, zeolites, purposefully moistened fillers or organic substances having a defined water content.

Claim 62 (Currently Amended): A multi-component system for making impressions according to claim 54 76, characterized in that said multi-component system further comprises the desiccants (h) are comprising zeolites, dried fillers or water-absorbing organic compounds, such as oxazolidines and alkali salts of poly(meth)acrylic acid (superabsorbers).

Claim 63 (Currently Amended): A multi-component system for making impressions according to claim 54 76, characterized in that said multi-component system further comprises the inert carrier materials (i) are comprising mineral oils, branched hydrocarbons, vaseline, esters, phthalic acid esters, acetyltributyl citrate, polyalkylene oxides and polyesters and their copolymers.

Claim 64 (Currently Amended): A multi-component system for making impressions according to claim 54 76, characterized in that

said multi-component system further comprises the compounds for reaction inhibition of the hydrosilylation reaction (j) ~~are~~ comprising short-chained organopolysiloxanes of general formula



wherein R represents the same or different optionally substituted hydrocarbyl residues, such as alkyl, alkenyl, aryl, alkynyl, alkenyl, and alkynyl-terminated siloxane residues; and $n = 0$ or an integer of from 1 to 6; or vinyl-containing cyclic siloxanes, such as tetravinyltetramethylcyclotetrasiloxane, or organic hydroxy compounds containing terminal double or triple bonds, diethyl maleate, alkylsilane, arylsilane, alkenylsilane, alkynylsilane, benzotriazole, compounds comprising a 1,4-ene-yne structural unit, compounds comprising a 1,3-ene-yne structural unit, such as ~~2-methyl-hexene-3-yne~~ 2-methyl-1-hexene-3-yne, ethyl-3-(trimethylsilyl)propynoate, bis(phenylethynyl)dimethylsilane, diynes, such as decadiyne or dodecadiyne, polyynes, dienes, polyenes, such as decatriene, (1,3-dioxane-2-ylethynyl)trialkylsilane, 1,4-divinyltetramethyldisilylethane, amines or phosphanes.

Claim 65 (Currently Amended): A multi-component system for making impressions according to claim 54 76, characterized in that said multi-component system further comprises the reinforcing fillers (k) are comprising highly dispersed active fillers, such as titanium dioxide, aluminum oxide, zinc oxide, or wet-precipitated or pyrogenic silicic acid, which may optionally be in a hydrophilic or hydrophobized form; or mineral fibrous fillers, such as wollastonite; or synthetic fibrous fillers, such as glass fibers, ceramic fibers or plastic fibers.

Claim 66 (Currently Amended): A multi-component system for making impressions according to claim 54 76, characterized in that said multi-component system further comprises the non-reinforcing fillers (l) are comprising metal oxides, metal oxide hydroxides, mixed oxides or mixed hydroxides, or silica, in the form of quartz and its crystalline modifications, fused silica, alumina, calcium oxide, aluminum hydroxide, calcium carbonate, kieselguhr, diatomaceous earth, talcum, ground glasses and plastic-based fillers, for example, polymethyl methacrylate, polycarbonate, polyvinyl chloride, silicone resin powder, or powder based on fluoro-organic compounds, the non-reinforcing fillers optionally being surface-treated (coated).

Claim 67 (Currently Amended): A multi-component system for making impressions according to claim 54 76, characterized in that said multi-component system further comprises the auxiliaries (m) are comprising dyes, surfactants, opaque substances, matting agents, such as titanium dioxide or zinc oxide, plasticizers, hydrogen adsorbers/absorbers, radiopaque substances or organosilicon MQ resins comprising Si-vinyl, Si-OR, Si-ethynyl or SiH groups, or compounds or buffers and substances for adjusting the pH range.

Claim 68 (Previously Presented): Mixtures obtainable by mixing the components A and B of claim 52.

Claim 69 (Previously Presented): The mixtures according to claim 68, characterized in that, during and after the mixing of the components, the mixture, in a first step, undergoes a transition from a lighter-bodied mixer-suitable initial consistency to a heavier-bodied plastic phase in which the material builds up a high force pressure in the making of dental impressions in the impression tray, and in a second step, cures to its final elastic form.

Claim 70 (Previously Presented): The mixtures according to claim 68, characterized in that said mixtures have been cured to completion.

Claim 71 (Previously Presented): The mixtures according to claim 68, characterized in that the mixtures have a mixer-suitable consistency, in a first state at the beginning of mixing, of > 26 mm (according to ISO 4823), whereupon the mixtures undergo transition to a heavier-bodied second state with a consistency of < 35 mm (according to ISO 4823), caused by condensation reactions of SiOR groups or by hydrosilylation reactions of alkynyl groups with SiH groups, this latter consistency being maintained over a period of at least 15 s, and thereafter, the mixtures undergo transition to a third solid, elastic state following curing through a hydrosilylation reaction of alkenyl groups with SiH groups.

Claim 72 (Currently Amended): A method for the preparation of impressions from objects from which impressions are to be made using a multicomponent system according to claim 5± 76, wherein the impression material is prepared by mixing the components, wherein the impression material is first dispensable in a first state from a container, whereupon it undergoes transition to a second state in which the viscosity of the impression material is increased,

whereupon an impression is prepared from an object from which an impression is to be made, whereupon the impression material undergoes transition to a third, solid state in which an impression result is recorded, the second state being achieved by graded hydrosilylation reactions between alkynyl and alkenyl structural units with compounds containing Si-H groups and/or by graded addition reactions (between alkenyl and SiH groups) and condensation reactions (of SiOR groups with condensation catalysts).

Claim 73 (Previously Presented): The method according to claim 72, characterized in that the consistency of the impression material in a first state at the beginning of mixing is > 26 mm (according to ISO 4823), and the impression material is mixer-suitable in this first state, that the consistency of the impression material in the second state is < 35 mm (according to ISO 4823), wherein the impression material is heavier-bodied than it is in the first state, and that the impression material in this second state is retained to the end of the total pot life, i.e., for at least 15 s.

Claim 74 (Previously Presented): The method according to claim 72, characterized in that the mixtures have a mixer-suitable consistency, in a first state at the beginning of mixing, of > 26 mm (according to ISO 4823), whereupon the mixtures undergo transition

to a heavier-bodied second state with a consistency of < 35 mm (according to ISO 4823), by a hydrosilylation reaction of alkenyl groups with SiH groups, this latter consistency being maintained over a period of at least 15 s, and thereafter, the mixtures undergo transition to a third solid, elastic state through condensation reactions of SiOR groups or through hydrosilylation reactions of alkynyl groups with SiH groups.

Claim 75 (New): A multi-component system for making impressions which contains

- (a) at least one compound having at least two alkenyl groups;
- (b) at least one organohydrogenpolysiloxane;
- (c) at least one hydrosilylation catalyst;

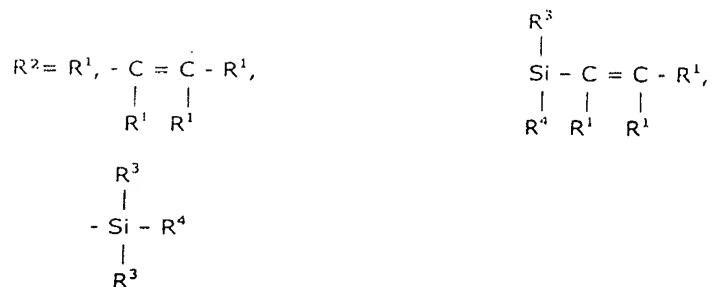
characterized by containing one or both of components (d₁) and (d₂), wherein

(d₁) is at least one polymeric compound having at least one alkynyl group characterized in that the alkynyl compound (d₁) is



wherein

R^1 = alkyl, aryl, arylalkyl, halogen-substituted alkyl or aryl groups, cyanoalkyl, cycloalkyl, -H, alkoxy, acyl and combinations thereof;



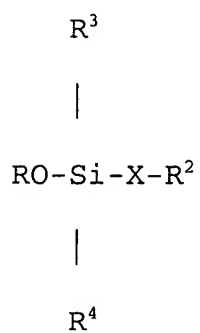
R^3 = halogen, aryl, alkylaryl, H, halogen-substituted alkyl and aryl groups, alkyl, or combinations thereof;

R^4 = R^3 , or R^4 is alkyl, methyl, or combinations thereof;

X = polysiloxane, oligosilicic acid esters, polysilicic acid esters, polymeric hydrocarbons or copolymers of the above mentioned compounds;

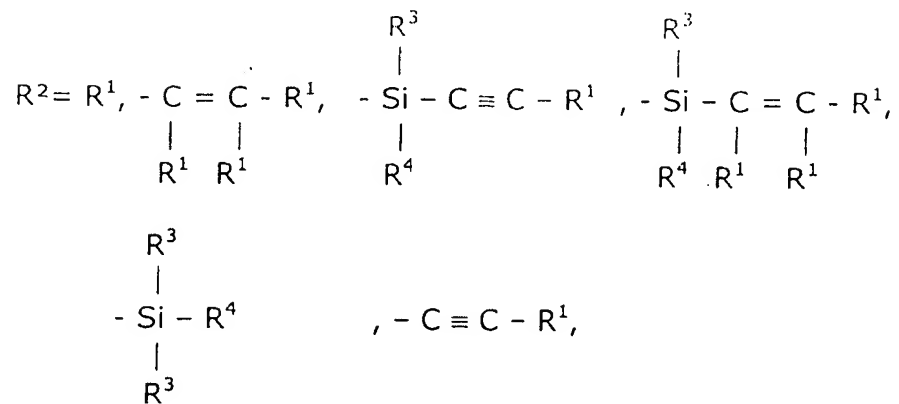
and

(d₂) is at least one compound having an Si-OR structural unit,
 wherein the Si-OR compound (d₂) is



wherein

R = H, alkyl, alkoxyalkyl or acyl;



R¹ = alkyl, aryl, arylalkyl, halogen-substituted alkyl or aryl groups, cyanoalkyl, cycloalkyl, -H, acyl, or combinations thereof;

R³ = alkenyl, alkynyl, halogen, aryl, alkylaryl, H, halogen-substituted alkyl or aryl groups, alkyl, or combinations thereof;

R⁴ = R³, or R⁴ is different from R³, wherein R⁴ is alkyl, methyl, alkynyl, ethynyl, or combinations thereof; and

X = polysiloxane, oligosilicic acid esters, polysilicic acid esters, polyethers, polymeric hydrocarbons, polyesters and copolymers of the above mentioned compounds; and

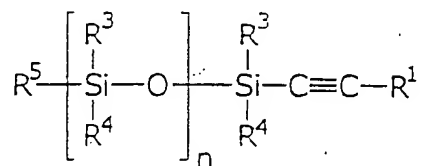
when a compound (d₂) having an Si-OR structural unit is contained,

- (e) at least one condensation catalyst or condensation cross-linking agent; and
- (f) inert carrier materials selected from the group consisting of mineral oils, branched hydrocarbons, vaseline, esters, phthalic acid esters, acetyltributyl citrate, polyalkylene oxides and polyesters and their copolymers.

Claim 76 (New): A multi-component system for making impressions which contains

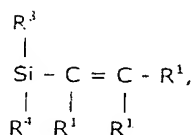
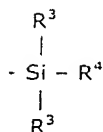
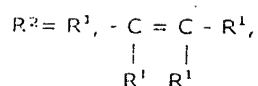
- (a) at least one compound having at least two alkenyl groups;
 - (b) at least one organohydrogenpolysiloxane;
 - (c) at least one hydrosilylation catalyst;
- characterized by containing one or both of components (d₁) and (d₂), wherein

(d₁) is



wherein n=7 to 6000,

R¹ = alkyl, aryl, arylalkyl, halogen-substituted alkyl or aryl groups, cyanoalkyl, cycloalkyl, -H, alkoxy, acyl and combinations thereof;

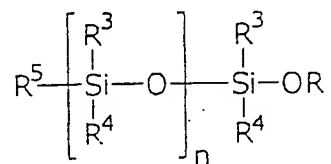


R^3 = halogen, aryl, alkylaryl, H, halogen-substituted alkyl and aryl groups, alkyl, or combinations thereof;

R^4 = R^3 , or R^4 is different from R^3 , wherein R^4 is alkyl, methyl, or combinations thereof; and

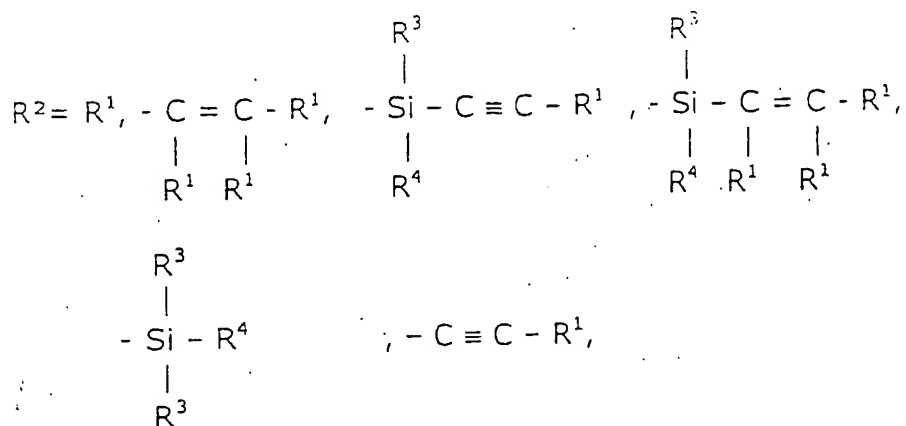
R^5 = H, alkyl, aryl, alkylaryl, halogen, halogen-substituted alkyl and aryl groups, -OR, aminoalkyl, epoxy, cyanoalkyl, cycloalkyl, methacrylate, acrylate, mercaptoalkyl, carboxylate, carboxyalkyl or succinic anhydride, and

compound (d₂) is



wherein $n=7$ to 6000;

R = H, alkyl, alkoxyalkyl or



R¹ = alkyl, aryl, arylalkyl, halogen-substituted alkyl or aryl groups, cyanoalkyl, cycloalkyl, -H, alkoxy, acyl, or combinations thereof;

R³ = alkenyl, alkynyl, halogen, aryl, alkylaryl, H, halogen-substituted alkyl or aryl groups, alkyl, or combinations thereof;

R⁴ = R³, or R⁴ is alkyl, methyl, alkynyl, ethynyl, or combinations thereof; and

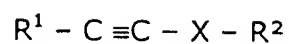
R⁵ =
$$\begin{array}{c} \text{R}^1 \text{R}^1 \\ | \quad | \\ -\text{C}=\text{C}-\text{R}^1 \end{array}$$
 H, alkyl, aryl, alkylaryl, halogen, halogen-substituted alkyl and aryl groups, aminoalkyl, epoxy, cyanoalkyl, cycloalkyl, alkylhydroxyl, methacrylate, acrylate, mercaptoalkyl, carboxylate, carboxyalkyl or succinic anhydride; and

when a compound (d₂) having an SiOR structural unit is contained, (e) at least one condensation catalyst or condensation cross-linking agent.

Claim 77 (New): A multi-component system for making impressions which contains

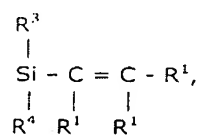
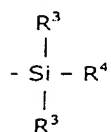
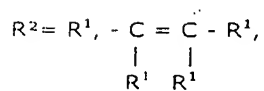
- (a) at least one compound having at least two alkenyl groups;
- (b) at least one organohydrogenpolysiloxane;

(c) at least one hydrosilylation catalyst;
 characterized by containing one or both of components (d₁) and
 (d₂), wherein
 (d₁) is at least one polymeric compound having at least one
 alkynyl group characterized in that the alkynyl compound
 (d₁) is



wherein

R¹ = alkyl, aryl, arylalkyl, halogen-substituted alkyl or aryl
 groups, cyanoalkyl, cycloalkyl, -H, alkoxy, acyl and
 combinations thereof;



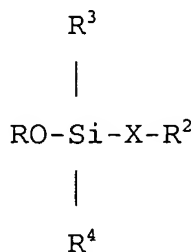
R^3 = halogen, aryl, alkylaryl, H, halogen-substituted alkyl and aryl groups, alkyl, or combinations thereof;

R^4 = R^3 , or R^4 is alkyl, methyl, or combinations thereof;

X = polysiloxane, oligosilicic acid esters, polysilicic acid esters, polymeric hydrocarbons or copolymers of the above mentioned compounds;

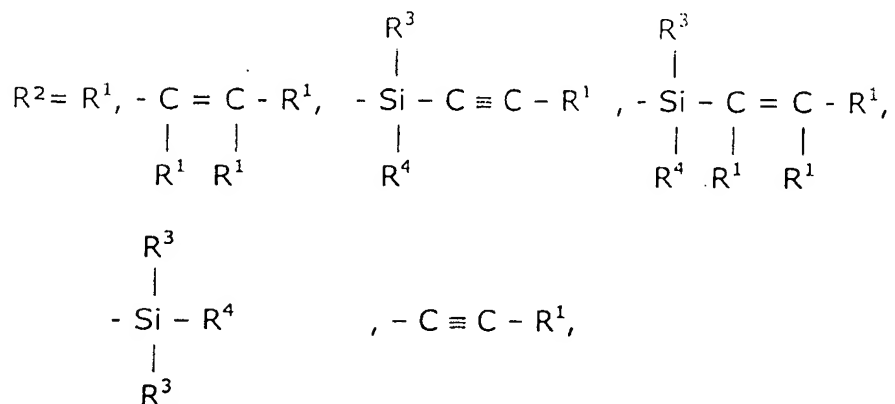
and

(d_2) is at least one compound having an Si-OR structural unit, wherein the Si-OR compound (d_2) is



wherein

R = H, alkyl, alkoxyalkyl or acyl;



R¹ = alkyl, aryl, arylalkyl, halogen-substituted alkyl or aryl groups, cyanoalkyl, cycloalkyl, -H, acyl, or combinations thereof;

R³ = alkenyl, alkynyl, halogen, aryl, alkylaryl, H, halogen-substituted alkyl or aryl groups, alkyl, or combinations thereof;

R⁴ = R³, or R⁴ is different from R³, wherein R⁴ is alkyl, methyl, alkynyl, ethynyl, or combinations thereof; and

X = polysiloxane, oligosilicic acid esters, polysilicic acid esters, polyethers, polymeric hydrocarbons, polyesters and copolymers of the above mentioned compounds; and

when a compound (d₂) having an Si-OR structural unit is contained,

(e) at least one condensation catalyst or condensation cross-linking agent;

wherein said multi-component system comprises

at least two components A and B, characterized in that

component A contains

(a) the at least one compound having at least two alkenyl groups; and

(b) the at least one organohydrogenpolysiloxane; and

(d₁) the at least one polymeric compound having at least one alkynyl group or

(d₂) the at least one compound having an Si-OR structural unit,
wherein R = H, alkyl, alkoxyalkyl or acyl;
and component B contains
(c) the at least one hydrosilylation catalyst; and
when a compound (d₂) having an Si-OR structural unit is
contained, component A, component B, or each of components A
and B contains
(e) the at least one condensation catalyst or condensation
cross-linking agent; and
wherein one or both of components A and B further contains
(f) inhibitors of the condensation reactions of condensation
catalysts or condensation cross-linking agents with
compounds containing Si-OR structural units, wherein R = H,
alkyl, alkoxyalkyl or acyl;
(g) water-donating agents;
(h) desiccants;
(i) inert carrier materials;
(j) compounds for reaction inhibition of the hydrosilylation
reaction;
(k) reinforcing fillers;
(l) non-reinforcing fillers; and
(m) auxiliaries.